UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/656,063	09/05/2003	Hassan Mostafavi		8329

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BINGHAM, MCCUTCHEN LLP
THREE EMBARCADERO CENTER
18 FLOOR
SAN FRANCISCO, CA 94111-4067

EXAMINER
SONG, HOON K

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 05/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/656,063	MOSTAFAVI, HASSAN
	Examiner	Art Unit	
	Hoon Song	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _14 March 2005_.

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-47_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-47_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _22 October 2004_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _3/24/05_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application (PTO-152)

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

Claims 38, 41 and 46 are rejected under 35 U.S.C. 112, second paragraph, as

being indefinite for failing to particularly point out and distinctly claim the subject matter

which applicant regards as the invention.

Regarding claims 38, 41 and 46, it is unclear how to generate a composite image

by subtracting one image from another. In light of the specification, subtracting is

considered as "averaging".

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-14, 16-21, 23-31 and 33-47 are rejected under 35 U.S.C. 102(b) as

being anticipated by Cesmeli (US 6434215B1).

Regarding claims 1, 11,18 and 28, Cesmeli teaches a method or a computer

readable medium having a set of stored instruction of processing a x-ray image,

comprising:

collecting a first x-ray image and a second x-ray image (the plurality of same

view, column 5 line 20);

determining a composite image (average view, column 5 line 21) based on the

first and second x-ray images (the plurality of same view, column 5 line 20);

collecting a third x-ray image (the view set of each individual rotation), wherein the first and the third x-ray images comprises images of a same portion of an object (column 5 line 20); and

adjusting (subtraction, column 5 line 23) the third x-ray image (the view set of each individual rotation) based on the composite image (column 5 line 24-25).

Regarding claims 2, 12, 19 and 29, Cesmeli teaches the first, second, and third x-ray images are generated in a sequence (images acquired during each rotation, column 5 line 18).

Regarding claims 3, 13, 20 and 30, Cesmeli teaches the first, second, and third x-ray images are each contains an image of at least a portion of an animal body (22).

Regarding claims 4, 14, 21 and 31, Cesmeli teaches the determining a composite image comprises performing a image averaging on the first and second x-ray images (column 5 line 20).

Regarding claims 6, 16, 23 and 33, Cesmeli teaches the image averaging is performed based on a weighted average (normalization, column 6 line 3).

Regarding claims 7, 17, 24 and 34, Cesmeli teaches the adjusting comprises subtracting the composite image from the third x-ray image (column 5 line 24-25).

Regarding claims 8 and 25, Cesmeli teaches a system for processing a x-ray image, comprising:

means (18) for collecting a first x-ray image and a second x-ray image (the plurality of same view, column 5 line 20);

means (36) for determining a composite image based on the first and second x-ray images (average view, column 5 line 21);

means (18) for collecting a third x-ray image (the view set of each individual rotation), wherein the first and the third x-ray images comprises images of a same portion of an object (column 5 line 20); and

means (36) for adjusting (subtraction, column 5 line 23) the third x-ray image (the view set of each individual rotation) based on the composite image (column 5 line 24-25).

Regarding claims 9 and 26, Cesmeli teaches the means for determining a composite image comprises means (36) for performing an image averaging on the first and second x-ray images (column 5 line 20).

Regarding claims 10 and 27, Cesmeli teaches the means for adjusting comprises means for subtracting the composite image from the third x-ray image (column 5 line 24-25).

Regarding claims 35 and 43, Cesmeli teaches a method or a computer readable medium having a set of stored instruction of processing a x-ray image, comprising:

obtaining a first x-ray image (the plurality of same view, column 5 line 20);

obtaining a second x-ray image (the plurality of same view, column 5 line 20), wherein the first and the second x-ray images are obtained using x-ray having an energy level; and

determining a composite image (average view, column 5 line 21) based on at least a portion of the first and second x-ray images.

Regarding claims 36 and 44, Cesmeli teaches the first (41) and second (42) x-ray images are generated in a sequence (images acquired during each rotation, column 5 line 18).

Regarding claims 37 and 45, Cesmeli teaches the first and second x-ray images each contains an image of at least a portion of an animal body (22).

Regarding claims 38 and 46, Cesmeli teaches the determining a composite image comprises averaging at least a portion of the first x-ray image from at least a portion of the second x-ray image (average view, column 5 line 21).

Regarding claims 39 and 47, Cesmeli teaches determining a value associated with a contrast of the composite image (averaged image set).

Regarding claim 40, Cesmeli teaches a system for processing a x-ray image, comprising:

Means (18) for obtaining a first x-ray image (the plurality of same view, column 5 line 20)

Means (18) for obtaining a second x-ray image wherein the first and the second x-ray images are obtained using x-ray having an energy level (the plurality of same view, column 5 line 20); and

means (36) for determining a composite image (average view, column 5 line 21) based on at least a portion of the first x-ray image and at least a portion of the second x-ray image.

Regarding claim 41, Cesmeli teaches the means for determining a composite

image comprises means for averaging at least a portion of the first x-ray image from at least a portion of the second x-ray image (average view column 5 line 21).

Regarding claim 42, Cesmeli teaches means for determining a value associated with a contrast of the composite image (averaged image set).

Regarding claims 35 and 43, Cesmeli teaches a method or a computer readable medium having a set of stored instruction of processing a x-ray image, comprising:

obtaining a first x-ray image (the plurality of same view, column 5 line 20);

obtaining a second x-ray image (the plurality of same view, column 5 line 20), wherein the first and the second x-ray images are obtained using x-ray having an energy level; and

determining a composite image (average view, column 5 line 21) based on at least a portion of the first and second x-ray images.

Regarding claims 36 and 44, Cesmeli teaches the first (41) and second (42) x-ray images are generated in a sequence (images acquired during each rotation, column 5 line 18).

Regarding claims 37 and 45, Cesmeli teaches the first and second x-ray images each contains an image of at least a portion of an animal body (22).

Regarding claims 38 and 46, Cesmeli teaches the determining a composite image comprises averaging at least a portion of the first x-ray image from at least a portion of the second x-ray image (average view, column 5 line 21).

Regarding claims 39 and 47, Cesmeli teaches determining a value associated with a contrast of the composite image (averaged image set).

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by
another filed in the United States before the invention by the applicant for patent or (2) a patent
granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

Claims 35-41 and 43-47 are rejected under 35 U.S.C. 102(e) as being

anticipated by Doi et al. (US 6678399B2).

Regarding claims 35 and 43, Doi teaches a method or a computer readable

medium having a set of stored instruction of processing a x-ray image, comprising:

obtaining a first x-ray image (upper section image);

obtaining a second x-ray image (lower section image), wherein the first and the

second x-ray images are obtained using x-ray having an energy level; and

determining a composite image (mask image) based on at least a portion of the

first (upper section image) and second x-ray images (lower section image).

Regarding claims 36 and 44, Doi teaches the first (41) and second (42) x-ray

images are generated in a sequence (upper, target and lower images, figure 5b).

Regarding claims 37 and 45, Doi teaches the first and second x-ray images each

contains an image of at least a portion of an animal body (22).

Regarding claims 38 and 46, Doi teaches the determining a composite image

comprises averaging at least a portion of the first x-ray image from at least a

portion of the second x-ray image (subtraction, figure 5b, column 6 line 32).

Regarding claims 39 and 47, Doi teaches determining a value associated with a

contrast of the composite image (averaged image set).

Regarding claim 40, Doi teaches a system for processing a x-ray image,

comprising:

Means (18) for obtaining a first x-ray image (upper section image)

Means (18) for obtaining a second x-ray image (lower section image), wherein

the first and the second x-ray images are obtained using x-ray having an energy level;

and

means (36) for determining a composite image (make image, column 6 line 62)

based on at least a portion of the first x-ray image (upper section image) and at least a

portion of the second x-ray image (lower section image) (figure 5a).

Regarding claim 41, Doi teaches the means for determining a composite

image comprises means for averaging at least a portion of the first x-ray image from at

least a portion of the second x-ray image (make image, column 6 line 62).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 5, 15, 22 and 32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Cesmeli in view of Hopple et al. (US 6546124 B1).

Regarding claims 5, 15, 22 and 32, Cesmeli fails to teach the image averaging is performed using a boxcar averaging technique.

Hopple teaches a boxcar averaging technique (21).

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the imaging averaging method of Cesmeli with the boxcar averaging as taught by Hopple, since the boxcar averaging would provide faster calculations for generating the averaged image.

Response to Arguments

Applicant's arguments with respect to claims 1-47 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Hoon Song whose telephone number is (571) 272-2494.

The examiner can normally be reached on 8:30 AM - 5 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

DAVID V. BRUCE
PRIMARY EXAMINER

HKS 5/11/05
HKS